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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,148	12/12/2001	Yeong-Taeg Kim	SAM2.0007	2503

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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,148	KIM, YEONG-TAEG	
	Examiner	Art Unit	
	Sath V. Perungavoor	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 2-4, 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant(s) Response to Official Action

- [1] The response filed on 07 February 2005 has been entered and made of record.

Response to Arguments

- [2] Applicant's arguments filed on 07 February 2005 have been fully considered but they are not persuasive. Examiner's response to the presented arguments follows below.

Objection to the Drawings

Summary of Arguments:

Applicant has placed a prior art label on Figure 4. Applicant requests the withdrawal of the objection.

Examiner's Response:

Agreed. Examiner withdraws the previously made objection.

Objection to the Claims

Summary of Arguments:

Regarding claims 5 and 12: Applicant has deleted duplicate claims 5 and 12. Applicant requests the withdrawal of the objection.

Regarding claims 3, 4, 10 and 11: Applicant points to sections in the specification that provide support to the claim limitations.

Examiner's Response:

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Regarding claims 3, 4, 5, 10, 11 and 12: Agreed. Examiner withdraws the previously made objections.

Claim Rejections - 35 USC § 102

Summary of Arguments:

102 (b) with Song [US 5,038,388]

Regarding Claim 1: Applicant argues the following:

1. Song does not disclose, “obtaining a positive non-zero weighting factor to control a degree of enhancement” as required by Claim 1.
2. Song does not disclose “selecting edge pixel values representing a boundary of an edge in the first image” as required by Claim 1.
3. Song does not disclose, “defining a gain suppressing function having attenuation coefficients to be multiplied with particular pixel values of the high-pass image signal corresponding in location to the edge pixel values”.

Regarding Claim 6 and 7: Applicant argues the following:

1. Song does not disclose an edge in the horizontal or vertical direction.

102 (b) with Scognamiglio [NPL document, see PTO-892]

- Applicant makes arguments analogous to those made for Song in claims rejected with Scognamiglio.

Examiner's Response:

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Examiner respectfully disagrees.

102 (b) with Song [US 5,038,388]

Regarding claim 1:

Item 1: Examiner directs the applicant to Column 10 Lines 28-29 of Song, where this can be glaringly seen.

Item 2: Examiner directs the applicant to Column 9 Lines 13-18 of Song, where this can be glaringly seen. High frequency components represent the edges of an image and the values obtained are in a two-dimensional array of pixels.

Item 3: Examiner directs the applicant to Column 9 Lines 19-20 of Song, it is notoriously well known in mathematics that results from products of numbers with values between 0 and 1 is a suppression of the initial value.

Regarding Claim 6 and 7:

Item 1: Examiner directs the applicant to Figures 3E-3H of Song, where black pixels represent the edge pixels and they glaringly extend in both horizontal and vertical directions.

102 (b) with Scognamiglio [NPL document, see PTO-892]

- For brevity in this final official action, Examiner withdraws the rejections made with Scognamiglio, since any amendments made to overcome rejections with Song would overcome the rejections with Scognamiglio.

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Claim Rejections - 35 USC § 103

Summary of Arguments:

103 (a) with Song [US 5,038,388]

Regarding claim 9: Applicant argues the following:

1. Song does not disclose, “the gain suppressing function inherently performs the step of selecting the edge pixel values”.

103 (a) with Scognamiglio [NPL document, see PTO-892]

- Applicant makes arguments analogous to those made for Song in claims rejected with Scognamiglio.

Applicant requests the withdrawal of the rejection.

Examiner's Response:

Examiner respectfully disagrees.

103 (a) with Song [US 5,038,388]

Regarding claim 9:

- Item 1: Examiner directs the applicant to the Song reference in Column 3 Line 25, where “ $s[x(i,j)-z(i,j)]$ ” clearly meets this limitation.

103 (a) with Scognamiglio [NPL document, see PTO-892]

- For brevity in this final official action, Examiner withdraws the rejections made with Scognamiglio, since any amendments made to overcome rejections with Song would overcome the rejections with Scognamiglio.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[3] Claims 1 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Song [U.S. Patent Number 5,038,388]

Regarding claims 1, Song discloses a method for enhancing an image, which comprises *[Figures 1-2, Column 2 Lines 15-17]*: obtaining a first image signal including pixel values *[Figure 1, Step 200 in Figure 2, Column 2 Lines 15-17, Column 6 Line 66 to Column 7 Line 6]*; obtaining a high-pass image signal having high-frequency components of the first image signal *[Column 7 Lines 17-20]*; obtaining a positive non-zero weighting factor to control a degree of enhancement *[Column 7 Lines 21-22, Column 10 Lines 28-29]*; selecting edge pixel values representing a boundary of an edge in the first image *[Column 7 Lines 2-6, Column 2 Lines 6-7, Column 9 Lines 13-18: High frequency components represent the edges of an image and the values obtained are in a two-dimensional array of pixels.]*; for suppressing shoots, defining a gain suppressing function having attenuation coefficients to be multiplied with particular pixel values of the high-pass image signal corresponding in location to the edge pixel values *[Column 9*

Lines 19-20: The definition in the cited reference is a replica of the shoot suppressing function disclosed in the claimed invention]; multiplying the high-pass image signal by the weighting factor and by the gain suppressing function to obtain a result and [Multiplier 110 in Figure 1, Column 9 Line 28]; adding the result to the first image signal to obtain an enhanced image signal in which the shoots have been suppressed [Adder 20 in Figure 1, Column 9 Line 36].

Regarding claim 6, Song discloses a method according to claim 1, wherein the edge extends in a horizontal direction *[Figures 3E-3H; Black pixels represent the edge pixels and they glaringly extend in both horizontal and vertical directions.]*.

Regarding claim 7, Song discloses a method according to claim 1, wherein the edge extends in a vertical direction *[Figs. 3E-3H; Black pixels represent the edge pixels and they glaringly extend in both horizontal and vertical directions.]*.

Regarding claim 8, Song discloses a method according to claim 1, wherein the step of obtaining the high-pass image signal includes filtering the first image signal *[Column 7 Lines 17-20; It is also common knowledge in the art that the high-pass image signal entails filtering the image signal.]*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[4] Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Song.

Song discloses the gain suppressing function and the selecting of edge pixel values as set forth in the discussion of claim 1.

Song does not disclose expressly the gain suppressing function inherently performing the step of selecting the edge pixel values.

It would have been obvious to one with ordinary skill in the art at the time of invention to have the gain suppressing function inherently perform the step of selecting the edge pixel values. The motivation being “ $s[x(i,j)-z(i,j)]$ ” of Song in Column 3 Line 25 already performs this function, albeit each element is performed separately and later combined. Combining multiple elements into one function provides for simplified function.

Allowable Subject Matter

[5] Claims 2-4, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

[6] **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

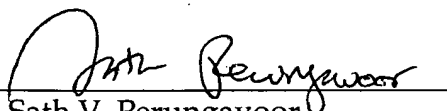
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Contact Information

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

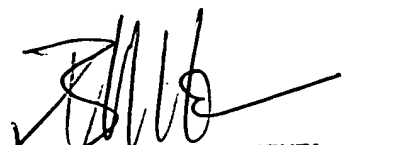


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Art Unit 2625

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Date: 12 June 2005



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